

**Purpose of Sampling:**

1. Confirm that the cap continues to prevent dioxin/furan migration from the waste pits to the San Jacinto River following storms occurring since the last cap passive pore-water sampling event in 2012.
2. Determine whether there has been any migration of dioxin/furan contaminated sediment from under the toe of the cap using sediment samples.
3. Determine whether there is any migration of dioxin/furan from the alluvial aquifer at the waste pits or the Southern Impoundment into the San Jacinto River at levels above the Texas Surface Water Quality Standard (SWQS) for dioxin/furan using passive pore-water samplers and surface water samples.
4. Determine whether there is any migration of groundwater in the Southern Impoundment to the surface water in the Old River channel at levels above the SWQS using groundwater samples.

**Sampling Approach:**

1. Surface water samples: minimum 2 samples each in the San Jacinto River at an upstream location (Banana Bend), at a location directly over the waste pits cap, and at a location immediately downstream of the northern waste pits (near I-10 Bridge) (minimum 6 samples total); and a minimum 2 samples in the Old River spread across the north/south length of the Southern Impoundment. Sampling to be conducted at a minimum of three times on a weekly basis at each sampling location. Use sampling/analysis methods for the 17 dioxin/furan congeners capable of achieving a method quantitation limit that is less than the Texas Surface Water Quality Standard for dioxin/furan.
2. Surface sediment (0 – 12 inches): minimum 8 samples within 3-feet of tow of cap, with a bias for locations adjacent to the higher sediment dioxin concentrations under the outer edges of the cap, spread across the underwater perimeter of the cap. Sediment samples to be analyzed for the 17 dioxin/furan congeners and organic carbon with detection limits consistent with previous sediment sampling events.
3. Passive samplers (cap): minimum 10 locations in the underwater portions of cap with 2 samples (top and bottom of armor material) at each location; select locations with a bias toward the northwest area & areas of higher dioxin concentrations under the cap. Include appropriate reference compound samplers so that equalization status can be determined. Samples to be analyzed for the 17 dioxin/furan congeners. Also include surface water passive samplers at a minimum of three of the locations just above the cap distributed across the cap.
4. Passive samplers (un-capped sediment – northern pits area): minimum 18 locations at a depth of 0 – 12 inches around the perimeter of the cap in the sediment at random distances from just beyond (several feet) the toe of the cap, but no further away than 30-feet from the toe of the cap. Include an additional 2 pore-water samplers at the northwest and southeast outlets of the drainage ditch located on the south side of the cap. Samples to be analyzed for the 17 dioxin/furan congeners. Also include surface water passive

samplers at three of the locations just above the sediment distributed at locations across the perimeter of the cap.

5. Passive samplers (sediment – southern impoundment area): minimum 10 underwater locations along the Old River shoreline spread across the north/south length of the Southern Impoundment, with a bias for locations across and down gradient from the highest monitoring well groundwater concentrations. The pore-water samplers should be placed at random distances from the shoreline ranging from 10 feet away but no further away than 30-feet from the shoreline. Samples to be analyzed for the 17 dioxin/furan congeners. Sampler locations should also be field adjusted if any barges are moored in the planned locations.
6. Groundwater samples: collect groundwater samples from each of the existing Southern Impoundment area monitoring wells, both shallow and deep, and perform analysis for the 17 dioxin/furan congeners as well as all other chemicals previously detected in any south area monitoring well. Also install and sample 1 new shallow groundwater monitoring well (depth consistent with previous shallow monitoring wells) located as near the shoreline a practical and located down-gradient from existing monitoring well SJMW001 and soil boring SJSB012.
7. The EPA dive team will assist with placement and retrieval of the passive samplers.